



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/623,004

07/17/2003

Alex Ka Tim Poon

PA0362-US / 11269.60

4132

7590

12/02/2004

The Law Office of Steven G. Roeder  
5560 Chelsea Avenue  
La Jolla, CA 92037

EXAMINER

RUTLEDGE, DELLA J

ART UNIT

PAPER NUMBER

2851

DATE MAILED: 12/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/623,004

**Applicant(s)**

POON ET AL.

**Examiner**

D. Rutledge

**Art Unit**

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-61 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 10/5/12/2003 (three)
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1,3 – 9, 19, 20, 22 – 25, 33, 37, 39 – 40, 43 – 46, 48 – 50, 54 – 57, 60 and 61 are rejected under 35 U.S.C. 102(\*\*\*), as being anticipated by the Article "Residual Errors in Laser Interferometry from Air Turbulence and Nonlinearity by Bobruff.

The reference in Figs 1 and 2 show an interferometer measuring arrangements to prevent incorrect measurement as a result of environmental elements/conditions. The beam splitter is coated (shielding material) to reduce contamination. The interferometer may be from a laser having plural frequencies as shown in Fig. 2. The beams are rotatable through a  $\lambda/2$  plate. Fig. 2 shows redirectors (prisms) and reflectors (shaded components) and their axes, paths and related angles. The measurement position of the stage is obtained as claimed, namely, the position of the stage along the second axis is measure by the second system from the sum of the position of the stage measured by the first system. Fig. 6 shows another arrangement which may have two source and the linear and angular displacement of the stage.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 17, 18, 31, 32, 41, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over the article Residual Error in Laser Interferometry...Nonlinearity in view of Iwamoto (EP 1168084).

The article discloses that the teaching is used in lithography, but does not show an exposure apparatus. One of ordinary skill in the art would therefore be motivated to use the teaching in a manufacturing environment having an exposure apparatus such as shown in the Iwamoto reference.

6. Claims 6, 10 - 19, 26 - 36, 41, 42, 47, 51 - 53, and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over The Residual Error article in view of Hamada et al. (JP 2001-307983).

The article, in Table 1, discloses the results using an enclosed (shielded) system or beam and an un-enclosed beam or system, although not shown in the figures. The secondary reference discloses enclosing at least part of the beam. The secondary reference also discloses that part of the measuring system may ride or evidently rest on the stage as it is moved, see text related to at least interferometer component 83. The other component may move toward and away from the stage. The secondary reference also discloses the use of plural measuring sources in Fig. 4. As mentioned in paragraph 2 above, Fig. 6 may have plural sources, but if it does not, one of ordinary skill in the art would have recognized that to use one source and split the beam into plural beams or to use plural sources, are not novel arrangements. Both arrangements produce plural beams, and therefore, one of ordinary in the art would have been motivated to substitute one arrangement for the other. The secondary reference also discloses the exposure apparatus for manufacturing the device.

7. Claims 2, 21, 38 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Residual Error in Laser Interferometry article as applied to claims 1, 19, 33, and 50 above, and further in view of the article in Optic Guides 5, Penta prisms.

Art Unit: 2851

The primary reference uses prisms, but does not use penta prisms. The artice Penta Prisms discloses the advantages of using such a prism in this environment. One of ordinary skill in the art would be motivated to use a penta prism for the stated reasons. Also using a penta prism would reduce the number of individual components or prisms needed in a given measuring arrangements.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Hill references disclose an Interferometry arrangement.

### ***Response Data***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. Rutledge whose telephone number is (571) 272-2127. The examiner can normally be reached on Mon - Thurs, 6:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2851

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
D. Rutledge  
Primary Examiner  
Art Unit 2851

dr  
11/15/2004